FIGURE 8 illustrates various modules in the SAN manager that implement LUN management services. A SAN host manager module (SANHostMgr) 68 maintains a list of managed hosts, for example, by IP address, in a Host Table. This list enumerates machines configured as managed hosts. A SAN agent host query module (SANAgentHostQuery) 70 provides host identification information at startup and on demand to the SANHostMgr 68. For example, at start of service, it sends Agent Registration Event to the SANHostMgr 68. Further, it can be called by services, such as, SANHostMgr 68, SAN LUN Manager module (SANLunMgr) 72, or other services, to provide host information. The SAN LUN manager module (SANLunMgr) 72 maintains a list of Host-LUN assignments, for example, by IP address or LUN ID, is an Assignment Table. This list is typically frequently updated by function calls from other services, such as, GUI or SAN Automation. It is also occasionally updated according to conditions reported by a SAN Agent Disk Pool service module 74.

The SANLunMgr 72 also monitors and reports the existence of SAN-attached hosts that do not have LUN masking enabled. These hosts, herein referred to as called "Rogue Hosts", can potentially compromise the SAN data integrity and security. Rogue hosts that are known to the SANHostMgr X are called "LUN Manager Rogue Hosts." Those known only to the SAN manager are called "SAN Manager Rogue Hosts." SANLunMgr can enumerate LUN Manager Rogue hosts, and can provide an "existence" notification for the Rogue hosts. A list of the LUN Manager Rogue hosts is kept in a Rogue Host Table. The SANLunMgr 72 can also include a property change listener that adjusts SANAgentDisk polling interval, and enables Rogue Host handling only when SANAgentDiskPool agents are "deployed". It further queries

SANAgentDiskPool for agent status, updates Rogue Host Table, queries SANManager for SAN Manager Host status, and notifies other services (GUI) of change in SAN Manager Rogue Host status.

With continuing reference to FIGURE 8, the SANAgentDiskPool 74 provides basic host information to the SANLunMgr 72, services request to assign and un-assign LUNs, and refreshes LUN assignments according to the current status recorded in the Assignment Table.

LUN IDs

In the illustrated embodiment, scanners running on the hosts query the storage devices to gather raw information regarding attributes, e.g., logical units, of the storage devices. The scanners transmit this raw information via the agents to the SAN manager, which utilizes this information along with an algorithm and support information, as well as previous scan information, to assign identifiers to the storage logical units, as described in more detail below. The SAN manager passes the LUN ID information as well as an algorithm identifier, for example, through a Disk Manager, to filter drivers associated with the hosts. These filter drivers intervene whenever the host file system or operating system attempt to mount a storage device on the interconnect fabric, failing all attempts except those for assigned LUNs.

With reference to FIGURES 9 and 10, in this illustrated embodiment, the scanners running on exemplary managed hosts 12a -- 12c, such as an Attribute Scanner 42a, utilize Page 83h and/or Standard Page commands of SCSI protocol to query exemplary storage devices 14a, 14b, 14c,

and 14d regarding attributes of storage logical units present on these devices. Vendor and product identification data can be separated into the following distinct fields:

(Unique ID) Unique ID generated as "LunXml:" + node WWN + "LUN" + lun#

(Vendor ID) Vendor ID from Standard Inquiry fields 8-15

(Product ID) Product ID from Standard Inquiry fields 16-31

(Revision) Revision level from Standard Inquiry fields 32-35

(rawSTDdata) STD data is the entire set of Standard Inquiry data returned by the device.

(raw83data) 83h data is the entire set of Inquiry VPD page 83h returned by the device. If the device does not support page 83h, then the raw83data stanza will not be included in the data.

While those skilled in the art will appreciate that other combinations of fields may be used, the UniqueID, VendorID, Product ID, Revision, rawSTDdata and raw83data are returned in the manager portion of the scanner results. The rawSTDdata and raw83data are also returned in the Storage Automation portion of the scanner results. The unique ID field is utilized for relative identification within the XML. Identifying the logical unit based on reporting node WWN may result in identification of the same LUN in the XML data multiple times with distinct unique IDs. These LUNs will be resolved into a single entity at the manager level applying the LUN ID algorithms, described below.